Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

to occur some hours after noon, it being also strong at noon; whilst Mr. Clarke usually found it almost evanescent at that period. These differences, the author conceives, may arise from difference of climate, or imperfect insulation of the instruments.

Mr. Clarke believes the electric intensity exhibited by the various clouds to be in the following order:

The nimbus, the cumulo-stratus, the cumulus, the stratus, the cirro-stratus, the cirro-cumulus, and the cirrus.

DONATIONS.

Asiatic Researches, Vol. XIX. Part 1. Presented by the Asiatic Society.

The London Medical and Surgical Journal, for April, 1837. Presented by the Editor.

June 26.

Rev. B. LLOYD, D. D., Provost, T. C. D., President, in the Chair.

Matthew O'Conor, Esq., was elected member of the Academy.

Professor Liebig, of Giessen, was elected honorary member of the Academy.

A paper was read, "on a new Gaseous Compound of Carbon and Hydrogen." By Edmund Davy, Esq., F.R.S. &c., Professor of Chemistry in the Royal Dublin Society.

This compound was procured by the action of water on a black substance obtained by exposing a mixture of cream of tartar and charcoal powder to a strong heat in an iron bottle. The gas is highly inflammable, and when kindled in contact with air, it burns with a bright white flame, apparently denser and of greater splendour than even olefiant gas. It forms with oxygen a powerfully explosive mixture, when the volume of the latter is to that of the former, as three or four to one. The new gas explodes spontaneously when brought in contact with chlorine gas; and this effect is accompanied with the production of flame, and the copious deposition of carbon: and is quite independent of the action of light, or the sun's rays, as it readily takes place in the dark. Under the ordinary pressure of the atmosphere, water absorbs about its own bulk of the gas, which is again liberated by heat, apparently unaltered.

According to Professor Davy's experiments, the new gas consists of a volume of hydrogen gas and two volumes of the vapour of carbon condensed into one volume; and it requires for its complete combustion two and a half volumes of oxygen gas. Its specific gravity is 0.917, that of common air being 1.000. 100 cubic inches of it weigh 28.4378 grains.

The equivalent of the new gas appears to be 13.24, and the formula by which it is expressed is $2\mathrm{C}+\mathrm{H}$, or $\mathrm{C}^2+\mathrm{H}$. The name proposed for it is *bicarburet of hydrogen*, which simply expresses its chemical constitution.

A paper by Professor Mac Cullagh, "on the Properties of Surfaces of the second Order," was read.

Among various other matters, this paper contains a new class of properties which are analogous to the focal properties of the conic sections. The author has found that surfaces of the second order may be generated by means of a given point as focus, a given right line as directrix, and a given plane. In general, every such surface is the locus of a point, whose distance from the focus bears a given ratio to its distance from the directrix, the latter distance being measured parallel to the given plane. This mode of generation, however, excludes surfaces of revolution about the major axis, as the corresponding generation of the conic sections excludes the circle. When the given ratio is not one of equality, the surface has circular sections parallel to the given plane; when it is a ratio of equality, we get the hyperbolic paraboloid. All other things remaining the same, the focus and directrix may be changed without changing the surface described. If we confine ourselves to the central surfaces, the locus of the foci for a given surface will be an ellipse, which may be called the focal ellipse, each focus having a corresponding directrix perpendicular to the plane of this ellipse.

If the focal ellipse be made the base of a cone, whose vertex is at any point V on the surface, the normal at this point will be one of the principal axes of the cone. But, as three surfaces, confocal to each other, and therefore having the same focal ellipse, may be described through a given point, if we suppose two other such surfaces to pass through the point V, the normals to these surfaces will be the other two principal axes of the cone. And if a system of surfaces, confocal to these three, be circumscribed by cones having a common vertex at V, the principal axes of all these cones will be the same as those of the cone which has the focal ellipse for its base. Indeed, the focal ellipse (which lies in the plane of the greatest and the middle axes of the ellipsoids) may, in the confocal system, be considered as the limit between the ellipsoids and the hyperboloids of one sheet. There is also, in the plane of the greatest and least axes of the ellipsoids, a focal hyperbola which is the limit between the confocal hyperboloids of one and of two sheets; and of course, the cone which has this hyperbola for its base, and V for its vertex, has the same principal axes as the cones already mentioned. Right lines which pass, at the same time, through the focal ellipse and the focal hyperbola, possess remarkable properties.

The foregoing are the leading propositions in Mr. Mac Cullagh's paper. There are besides many particular theorems which could not be noticed within the compass of an abstract.

Mr. Graves, Fellow of Trinity College, mentioned the following theorem of his own, relative to confocal surfaces :—

"If there be two confocal surfaces of the second order, one of which is circumscribed by a cone whose plane of contact touches the other surface in a certain point, the normal at this point will pass through the vertex of the cone."

A new rain-gauge was exhibited to the Academy, contrived by the Rev. Thomas Knox.

The object of this instrument is to register the amount of rain that falls when the wind is in different points. Its construction is very simple. The water,—instead of descending from the reservoir directly into the tube of registry,—passes through a lateral tube into an annular-shaped vessel, divided into eight compartments, each of which terminates below in a graduated glass tube. It is obvious, then, that if the eight tubes be set to correspond with the cardinal and intermediate points, and that the reservoir be made to revolve on a vertical axis by means of a vane, the direction of which corresponds with that of the lateral tube, the object proposed will be attained. Mr. Knox has preferred to make the reservoir fixed, and the system of tubes moveable; but the result is obviously the same.

The Academy then proceeded to consider the amendments of the by-laws, proposed by the Council; and, after some discussion, it was resolved that there be an adjourned meeting at two o'clock, on Friday the 30th of June, for the further consideration of the subject.

DONATIONS.

A Copy of the Ordnance Survey of the County of Leitrim, in 40 sheets. Presented by Lieutenant-Colonel Colby.

Proceedings and Ordinances of the Privy Council of England, Vols. VI. and VII. Presented by the Commissioners of the Public Records.

The ancient Kalendars and Indentaries of the Treasury of his Majesty's Exchequer, 3 Vols. Presented by the same.

Excerpta è Rotulis Finium in Turri Londinensi asservatis, Henrico Tertio Rege, A. D. 1216—1272. Cura Caroli Roberts. Vol. II. A. D. 1246—1272. Presented by the same.

A Brief Description of the Etruscan and Greek Antiquities, now exhibited at No. 121, *Pall Mall.* Presented by Sir William Betham.

An Address to Astronomical Observers, relative to the Improvement and Extension of the Astronomical Society's Catalogue of 2881 *principal Stars.* Presented by Francis Baily, Esq.

On the Atmospheric Tides and Meteorology of Dukhun. By Lieutenant-Colonel W. H. Sykes, F.R.S., &c. &c. Presented by the Author.

The same Author presented also the following papers to the Academy:

On the Geology of a portion of Dukhun, East Indies.

On the Quails and Hemipodii of India.

On the Increase of Wealth and Expenditure in the various Classes of Society in the United Kingdom, as indicated by the Returns made to the Tax-office, Exports and Imports, Savings' Banks, &c. &c.

Description of the Wild Dog of the Western Ghâts.

Some Account of the Kolisurra Silk-worm of the Deccan.

Remarks on the Identity of the Personal Ornaments sculptured on some Figures in the Budd'ha Cave Temples at Carli, with those worn by the Brinjaris.

Land Tenures of Dukhun, Parts 1 and 2.

A Catalogue of the Mammalia and Birds observed in Dukhun, East Indies.

Abstract of the Statistics of Dukhun, (*Deccan,*) 1827-28.

Description of a new Species of Indian Ants.

Remarks on the Origin of the popular Belief in the Upas, or Poison Tree of Java.